

## Lesson/Activity Planning Form

**Focus Standard:** Domain: OA: Operations and Algebraic Thinking  
Cluster: 4.OA.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range of 1-100 is prime or composite.

**Focus Practice Standard:**

MP1: Make sense of problems and persevere in solving them.

MP2: Reason abstractly and quantitatively.

MP4: Model with mathematics.

MP7: Look for and make use of structure.

MP8: Look for and express regularity in repeated reasoning.

**What visual(s) will you use?** Tools; connecting cubes, graph paper, colored pencils/crayons, document camera for discussion/share out of ideas, copies of the "Number Train" task from Insidemathematics.org (see below)

\*\*\*If you do a launch to the task, suggested materials: book, Polar Express (See bottom of this page)

**Math Activity/Task**- What task will you use to develop or further students' functional thinking?

<http://insidemathematics.org/index.php/4th-grade> - "Number Trains" task

**What questions you will ask as students are engaged in the activity/task to surface the mathematics?**

After students have independent think time, they will share out and work in teams of no more than 4 members.

Questions that may be asked while they are engaged with the activity to make sure the mathematical practices are met are:

- Do you think there is only one way to make the number \_\_\_\_ engine (product)?
- What tools can you use that could help/check? Why?
- Is there another way to represent the cars (factors)?
- How many groups of \_\_\_\_ (factor) do need to make number \_\_\_\_ engine (product)?

- Are you sure that you have all the cars (factors) to make number \_\_\_\_ engine (product)? How do you know?
- Is (ex.  $3 \times 4$ ) the same as  $(4 \times 3)$ ? Why or why not?
- What's the same about all of the sets.....is there anything that is different about them?
- What if I gave you an engine with the number 13? How many sets of cars will it have? How is this train different than the rest? (1 set of cars,  $1 \times 13$ ). Can you think of another car that would only have 1 set of cars like 13? (17, 19, 23, etc.)
- What do you call cars that have only factors of 1 and itself, like the number 13? (prime)
- Are all of the other engines (products) that we worked with prime? Why? Do you know the math vocabulary word for those engines? (composite)

**\*\*\*Launch: \*\*\***

1. How many of you have ever rode on a train? (accept app. responses)
2. I brought my favorite book about trains, Polar Express! (Read and check for comp. of story; discuss)
3. If we were to talk about parts of the train, what is an engine? Which are the cars? What did the little boy in the story ride in, the engine or the car?
4. Tie into the "train task".